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# IRL COUNCIL STEM ADVISORY COMMITTEE

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*This meeting is open to the public*  
**Tuesday, May 11, 2021**  
**1:30 – 4:30 pm**

**Virtual Meeting held on Zoom**

**Zoom Web Link:** <https://us02web.zoom.us/j/82450305334?pwd=eXg3NUMyZkUveHRFWGVFd2U1NTFOdz09>

*The order of items appearing on the agenda is subject to change during the meeting and is at the discretion of the presiding officer. Anyone wishing to speak on any item is requested to complete a speaker's card.*

- 1. Call to Order and Pledge of Allegiance** (Dr. Chuck Jacoby, Chair)
- 2. Agenda Revisions** (Dr. Chuck Jacoby, Chair)  
*Note any known changes and inquire if any members have suggested revisions.*
- 3. Introductions** (Dr. Chuck Jacoby, Chair)
- 4. Minutes Approval** (Dr. Chuck Jacoby, Chair)

**Requested Action:** Approval of Minutes from STEM meeting on February 9, 2021.

- 5. Public Comment**
- 6. Water Quality Reports**
  - a. Central and northern lagoon (Dr. Chuck Jacoby, SJRWMD)
  - b. Southern lagoon (Dianne Hughes, Martin County)
- 7. Presentation**  
Presentation: "Restore Lagoon Inflow: Project Introduction and Phase I Findings"  
(Dr. Jeff Eble, Florida Institute of Technology)
- 8. Old Business**
  - a. Science 2030 Report (Dr. Chuck Jacoby, Duane De Freese)

**Requested Action:** Discussion of Science 2030 Report.

- 9. New Business**
  - a. FY 2022 Final Budget Adoption (Daniel Kolodny)

**Requested Action:** Recommend that the IRL Council Board of Directors adopt the FY 2022 final budget by Resolution 2021-03.

- b. Authorization to submit a letter of intent to the EPA – Restore America’s Estuaries Coastal Watersheds Grant Program (Duane De Freese)

**Requested Action:** Recommend that the IRL Council Board of Directors direct staff to develop and submit a letter of intent in response to the RFP and develop and submit a full proposal if invited.

#### **10. IRLNEP Staff reports**

- a. Project update (Daniel Kolodny)
- b. Communication Report (Kathy Hill)
- c. Executive Director Report (Duane De Freese)

#### **11. Final Comments (Committee, Staff, Public)**

#### **12. Adjourn**

Next meeting: August 10, 2021 at 10:15am.

*NOTE: If a person decides to appeal any decision made by the Board with respect to any matter considered at such meeting or hearing, he or she will need a record of the proceedings, and that, for such purpose, he or she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. Section 286.0105, Florida Statutes (2014).*

*Pursuant to the provisions of the Americans with Disabilities Act, any person requiring special accommodations to participate in this workshop/meeting is asked to advise the agency at least 48 hours before the workshop/meeting by contacting: Stephanie Jackson at (305) 764-4319. If you are hearing or speech impaired, please contact the agency using the Florida Relay Service, 1(800) 955-8771 (TDD) or 1(800) 955-8770 (Voice). For more information, contact: Stephanie Jackson, IRL Council, 1235 Main St, Sebastian, FL 32958, (305) 764-4319, or by email at [jackson@irlcouncil.org](mailto:jackson@irlcouncil.org).*



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# IRL COUNCIL STEM ADVISORY COMMITTEE

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**Meeting Minutes**  
**Tuesday, February 9, 2021**  
**1:30 pm**

## **Virtual Meeting held via Zoom**

**These minutes have been abbreviated to only reflect agenda and actionable items.**

**Members in Attendance:** Kelly Young, Robert Day, Linda Walters, Jessica Frost, Dennis Hanisak, Chuck Jacoby, Rich Paperno, Valerie Paul, Leesa Souto, Mitch Roffer, Megan Stolen, Chad Truxall, Anne Birch, Dale McGinnis, Jessica Frost, Frank Golan, Sandra Bogon, Beth Powell.

**Guests in attendance:** Tom Price, Katie Bowes, Stacy Cecil, Claudia Listopad, Jessy Wayles, Austin Fox, John Windsor, Doug Scheidt, Marcy Frick.

**Agenda Item 1. Call to Order and Pledge of Allegiance** (Dr. Chuck Jacoby, Chair)  
Meeting was called to order at 1:31p.m.

**Agenda Item 2. Agenda Revisions** (Dr. Chuck Jacoby, Chair)  
None

**Agenda Item 3. Introductions** (Dr. Chuck Jacoby, Chair)  
Duane De Freese welcomed Stephanie Jackson to the IRL Staff.  
Chuck Jacoby introduced and welcomed Kelly Young as a member of to the STEM Advisory Committee.

**Agenda Item 4. Minutes Approval** (Dr. Chuck Jacoby, Chair)

**Requested Action:** Approval of Minutes from STEM meeting on July 28, 2020.  
MOTION WAS MADE BY MITCH ROFFER, SECONDED BY ANN BIRCH FOR APPROVAL OF MINUTES FROM MANAGEMENT BOARD MEETING ON JULY 28, 2020 AS WRITTEN, MOTION CARRIED UNANIMOUSLY.

**Agenda Item 5. Public Comment**  
None

**Agenda Item 6. Election of STEM AC Chair and Vice Chair**  
**Requested Action:** Elect Chair and Vice-Chair for Calendar Year 2021

MOTION WAS MADE BY BOB DAY, SECONDED BY VALERIE PAUL TO ELECT CHUCK JACOBY AS CHAIR AND CHAD TRUXALL AS VICE-CHAIR, MOTION CARRIED UNANIMOUSLY.

**Agenda Item 7. Water Quality Reports**

- a. Central and northern lagoon (Dr. Chuck Jacoby, SJRWMD)

**Agenda Item 8. Presentation**

Dr. Chuck Jacoby, SJRWMD, "North and Central Indian River Lagoon Status Review and directions for the future".

**Agenda Item 9. Old Business**

- a. Science 2030 Report (Dr. Chuck Jacoby, Duane De Freese)

**Requested Action:** Discussion of Science 2030 Report with comments due back to staff by March 9, 2021.

MANAGEMENT BOARD DISCUSSED THE SCIENCE 2030 REPORT AND AGREED FOR EACH MEMBER TO PICK THE TOP FIVE QUESTIONS FROM THE REPORT TO FURTHER DISCUSS IN ANOTHER MEETING.

**Agenda Item 10. New Business**

- a. FDEP grant announcement and FY 2021 Budget Amendment. (Duane De Freese, Daniel Kolodny).

**Requested Action:** Recommend the IRL Council Board of Directors adopts Resolution 2021-01 amending FY 2021 budget to include new grant revenues and expenditures.

**Recusal:** Chuck Jacoby, Dennis Hanisak

MOTION WAS MADE BY VALERIE PAUL, SECONDED BY CHAD TRUXALL TO RECOMMEND THE IRL COUNCIL BOARD OF DIRECTORS ADOPTS RESOLUTION 2021-01 AMENDING FY 2021 BUDGET TO INCLUDE NEW GRANT REVENUES AND EXPENDITURES, MOTION CARRIED UNANIMOUSLY.

- b. FY 2022 RFP Review of projects recommended for funding based on proposal review and rankings from RFP review committees (Duane De Freese, Daniel Kolodny)

**Requested Action:** Motion to recommend that IRL Council Board of Directors accepts the ranked project list and the project funding recommendations.

Members recused themselves from approving projects that would pose a conflict of interest. The chat log identifying each member and the appropriate project is attached.

**Recusal:**

Category 1: Austin Fox project 5

Category 2: None

Category 3: Chad Truxall project 1, Linda Walter project 1, Dennis Hanisak

Category 4: Rich Paperno project 2, Dennis Hanisak, Chuck Jacoby

MOTION WAS MADE BY BOB DAY, SECONDED BY ANNE BIRCH TO RECOMMEND THAT

IRL COUNCIL BOARD OF DIRECTORS ACCEPTS THE RANKED PROJECT LIST AND THE PROJECT FUNDING RECOMMENDATIONS.

- c. FY 2022 Preliminary Budget (Daniel Kolodny)

**Requested Action:** Recommend the IRL Council Board of Directors adopts Resolution 2021-02, the tentative FY 2022 budget.

MOTION WAS MADE BY ANNE BIRCH, SECONDED BY BOB DAY TO RECOMMEND THE IRL COUNCIL BOARD OF DIRECTORS ADOPTS RESOLUTION 2021-02, THE TENTATIVE FY 2022 BUDGET, MOTION CARRIED UNANIMOUSLY.

- d. FY 2021 Request for Qualifications – RFQ for CCMP revisions and project list support services (Kathy Hill)

**Requested Action:** Recommend the IRL Council Board of Directors to accept the recommended vendor(s) and authorize staff to enter into a service contract with the recommended vendor(s).

MOTION WAS MADE BY BOB DAY, SECONDED BY ANNE BIRCH TO RECOMMEND THE IRL COUNCIL BOARD OF DIRECTORS TO ACCEPT THE RECOMMENDED VENDOR(S) AND AUTHORIZE STAFF TO ENTER INTO A SERVICE CONTRACT WITH THE RECOMMENDED VENDOR(S), MOTION CARRIED UNANIMOUSLY.

- e. FY 2021 Request for Qualifications – RFQ for Contract support for graphic, editorial, and ADA services for graphic and print collaterals (Kathy Hill)

**Requested Action:** Recommend the IRL Council Board of Directors to accept the recommended vendor(s) and authorize staff to enter into a service contract with the recommended vendor(s).

MOTION WAS MADE BY RICH PAPERNO, SECONDED BY CHAD TRUXALL TO RECOMMEND THE IRL COUNCIL BOARD OF DIRECTORS TO ACCEPT THE RECOMMENDED VENDOR(S) AND AUTHORIZE STAFF TO ENTER INTO A SERVICE CONTRACT WITH THE RECOMMENDED VENDOR(S), MOTION CARRIED UNANIMOUSLY.

#### **Agenda Item 11. IRLNEP Staff reports**

- a. Project update (Daniel Kolodny)
- b. Communication Report (Kathy Hill)
- c. Executive Director Report (Duane De Freese)

#### **Agenda Item 12. Final Comments (Committee, Staff, Public)**

#### **Agenda Item 13. Adjourn**

MOTION MADE BY MITCH ROFFER, SECONDED BY RICH PAPERNO TO ADJOURN THE MEETING, MOTION CARRIED UNANIMOUSLY.

MEETING ADJOURNED AT 3:56 P.M.



# Indian River Lagoon National Estuary Program

*STEM AC Science Dispatch: 2021 (1)*

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## **SCIENCE 2030**

### ***IRL MONITORING AND RESEARCH PRIORITIES FOR THE NEXT DECADE (2020-2030)***

This document is a formal communication dispatch from the IRLNEP Science, Technology, Engineering and Modeling (STEM) Advisory Committee to the IRL Council Board of Directors and the IRLNEP Management Conference.

The STEM AC recommends that the following list of ten scientific issues and priority project examples serve as a guide for future request for proposals (RFP) in the Science and Innovation Category. The STEM AC also respectfully requests that the IRLNEP and IRL Council increase funding, as available, for monitoring, applied scientific research and innovation to respond to an urgent need to fill gaps in knowledge that align with priority issues, vital signs and recommended actions in the IRL Comprehensive Conservation and Management Plan – Looking Ahead to 2030.

Ten (10) broadly defined priority science issue areas are identified with specific examples of high-priority research lines of scientific inquiry. The research topics and ideas were assembled by members of the STEM AC and supported by discussions with IRL Council staff and the IRL scientific community.

The list is not intended to be a comprehensive list of all areas of important scientific research. Nor is it simply a “wish list” of research ideas and desires. Research topics presented in this document represent lines of scientific inquiry that are considered essential to CCMP implementation, IRL resource manager and restoration practitioner activities, science-based policy making, funding and stewardship.

## **1. COMPREHENSIVE AND INTEGRATED LAGOON-WIDE MONITORING**

### Research Priorities that align with the Monitoring and Data Vital Sign of the CCMM

- Develop a IRLNEP vision and plan for a comprehensive, coordinated and integrated 21<sup>st</sup> century IRL monitoring, mapping and modelling network supported by discrete and continuous monitoring, remote sensor systems, volunteer water quality network (citizen science) and data crowd sourcing.
- Conduct R&D of low-cost instruments and user-friendly apps to enable increased participation by citizen scientists.
- Evaluate value and application of drone technology to increase water quality monitoring efficiency and decrease costs.
- Automate and quality control check data collection from diverse sources (e.g., satellite, in situ collection, etc.) and aggregate in a central repository.
- Develop a monitoring plan to measure wind speed and direction in real time across the IRL to better understand aeolian circulation and to better target shoreline revegetation projects.
- Develop a strategy to install, operate, and maintain a lagoon-wide network of water quality sensors that upload data in real time to a central and publicly accessible repository?
- Evaluate and standardize methodologies for IRL water quality and estuary resources monitoring with a focus on probability-based designs that have been developed in conjunction with ORD's EMAP Research Program.

## **2. IRL WATERSHED HYDRODYNAMICS AND WATER FLOW:**

### **Research Priorities that align with the Hydrology Vital Sign of the CCMM**

- Improve scientific understanding of how land, watershed and internal waterbody alterations influence freshwater and groundwater inputs to the IRL and natural water flow patterns within the IRL.
- Develop a coupled hydrodynamic-ecological model for the IRL to assess ecosystem processes and interactions, simulate future land use and population growth scenarios, and predict climate change impacts.
- Identify and evaluate watershed restoration and remedial actions to mimic natural/historic water flow patterns and volumes.
- Identify and evaluate human impacts to natural water flow in the IRL including tributaries, causeways, inlets, and dredging.
- Understand the location and scale of groundwater contributions of freshwater, nutrients and pollutants to the IRL.
- Support research to evaluate benefits, efficacy and risks associated with intervention activities that improve IRL water flow and decrease residence time.

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### **3. NUTRIENTS AND IRL WATER QUALITY:**

#### Research Priorities that align with 5 Water Quality Vital Signs of the CCMP.

- Expand scientific understanding of the spatial and temporal complexity of IRL nutrient budget dynamics with quantification of all nutrient sinks, sources, loads and fluxes in the IRL and throughout the IRL watershed. Improve understanding of the IRL watershed nutrient budget with special emphasis on groundwater contributions and nutrient transport at the land-water and water-atmosphere boundaries.
- Implement comprehensive long-term studies of drift macroalgae in IRL and role in nutrient cycling.
- Improve our ability to model bottom-up influences from external and internal nutrient loads, including atmospheric deposition, surface water runoff, groundwater inputs, diffusive flux from muck, and decomposition of drift algae.
- Enhance surveys of bacterioplankton to improve our understanding of sediment-water column nutrient cycling.
- Identify nutrient contribution of biosolid (all classes) from application sites to surface and ground waters.
- Identify nutrient contribution of reuse water from application sites to surface and ground waters.
- Expand understanding of spatial and temporal variability of atmospheric deposition of nutrients throughout the lagoon.
- Improve understanding of hydrodynamics of IRL as it relates to ocean flushing, engineering solutions and water quality improvements.
- Develop a groundwater model for nutrient loads to incorporate ammonium.
- Identify technologies, methodologies and processes that eliminate, or drastically reduce, nutrient and pollutant discharges of raw and partially treated sewage to land and water with a specific focus on biosolids and reclaimed water management.
- Identify what fraction of nutrient inputs to the IRL are derive from anthropogenic sources including both runoff and baseflow.
- Determine how far nutrients travel in OSTDS effluent across differing soil species?
- Quantify what fraction of nutrient concentrations in the IRL are derived from sediment flux and advection, specifically, from muck.

#### 4. **HARMFUL ALGAL BLOOMS (HABs):**

##### Research Priorities that align with the HAB Vital Sign of the CCMM

- Evaluate temporal and spatial influences of nutrient over-enrichment on IRL biological diversity with a specific focus on triggers for harmful algal blooms and the role of nutrients in the transition from SAV dominated ecosystem to a nano-pico-plankton dominated estuary.
- Improve understanding of the biology and physiology of picocyanobacteria and Pedinophyceae, including their ability to use organic forms of nutrients, their nutrient uptake rates, their reproductive rates and their defenses against grazers.
- Maintain or expand water quality sampling to ensure spatiotemporal variations are captured adequately, which could include continuous monitoring of various parameters to fill gaps between monthly samples.
- Develop an improved understanding of the physiological tolerances of phytoplankton, drift algae and seagrasses.
- Improve understanding of nutrient availability and harmful algal bloom initiations.
- Implement research focused on understanding cyanoHABs and human health threats (acute and chronic threats).
- Improve surveys of potential zooplanktonic, infaunal, epifaunal and fish grazers to enhance our understanding of spatiotemporal variation in top-down control of phytoplankton blooms.
- Understand the role of viruses and their role in control of harmful algal blooms in the IRL.
- In order to better understand and manage the significant challenges of HABs in IRL, conduct long-term research to understand past and present blooms, while also leveraging new scientific techniques and analytical approaches.
- Enhanced understanding of seagrass productivity, health and response to stressors, thresholds and tipping points.
- Develop and improve predictive models for nutrients and harmful algal bloom initiation.
- Conduct basic research to understand taxonomy and eco-physiology of emerging IRL pico- and nano-plankton, new species of concern (i.e., *Aureoumbra lagunensis*) and benthic and water column microbial activity.
- Expand scientific understanding of ecological drivers for initiation of IRL algal blooms and ecological drivers for termination of IRL algal blooms.
- Determine the specific impact of differential grazing by both pelagic and benthic invertebrates on temporal and spatial patterns of phytoplankton community structure and abundance with a goal to provide science-based guidance for restoration.

## **5. IRL HEALTH & HUMAN HEALTH:**

### Research Priorities that align with the Contaminants Vital Sign of the CCMM

- Identify “hotspots” for legacy toxicant/pollutant contamination within the IRL watershed.
- Evaluate the potential ecological and human health impacts of glyphosate use in the IRL with a specific focus on chronic impacts to seagrasses, influence on HABs and persistence of biocide activity.
- Identify body burden concentration levels of toxicants, pharmaceuticals, endocrine disruptors in IRL fish and shellfish to determine safety levels and thresholds for human consumption.
- Identify body burden concentration levels of “forever chemicals”, such as perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) in the IRL food chain.
- Expand monitoring and research to better identify hotspots for pathogenic bacteria and conditions that cause the hotspots.
- Identify the ecological and water quality drivers for Vibrio and associated human risk.
- Identify the acute and chronic human health risk of direct contact and aerosol inhalation associated with IRL HABs?
- Evaluate toxin production in novel and emerging IRL nano and pico cyanobacteria and microalgae blooms.
- Pollutants of Emerging Concern: Pharmaceuticals
- Science to understand and mitigate for body burdens of diverse chemicals, toxicants and pollutants.

## 6. **BIOLOGICAL RESOURCES, HABITATS AND ECOSYSTEM FUNCTIONS**

### Research Priorities that align with multiple Vital Signs within Habitats and Living Resources of the CCMM

- Understand the individual and synergistic impacts of multiple stressors on IRL biodiversity, water quality and health.
- Conduct a comprehensive study of IRL fisheries with a focus on populations size, population trends, nutritional health, reproductive success, and critical habitat availability.
- Develop and inventory of rare, threatened and endangered species in the IRL and evaluate population size, trends and animal health.
- Establish habitat specific criteria that define restoration success? Identify vital signs and indicators for habitat condition? Identify quantified targets for habitat health.
- Address need for a science-based and fully-integrated habitat restoration plan for IRL with a focus on seagrasses, filter feeders, mangroves, salt marshes and living shorelines.
- Conduct a habitat restoration infrastructure capacity study to assess the need for east coast stocking capacity for seagrasses, oysters, clams, fishes and living shorelines (capital infrastructure improvements, O&M costs).
- Identify opportunities for R&D for disruptive technologies and innovative tools that advance water quality and habitat restoration effectiveness, efficiencies and cost-benefit.
- Establish guidelines for Indian River Lagoon resource restoration and protection strategies to ensure that activities are effectively planning for sea level rise?
- Develop IRL habitat models that can help answer the question: Are actions we take today to protect and enhance the natural resources of Indian River Lagoon be relevant in 50 years due to climate change and sea level rise?
- Apply best available science to define seagrass recovery and restoration success. Restoration Targets - 1943 seagrass imagery has been used set targets for “healthy” seagrass. Will all restoration efforts be targeted to 1943 or will each resource or group of resources have a separate restoration target based on temporally available data? Are we trying to get back to 1943, 1950, 1990, 2010 or just trying to prevent the system from further degradation?
- Evaluate new and emerging technologies to address nutrient reduction, pollutant reduction, muck dredging, biosolid dewatering and beneficial use). Develop pilot projects to demonstrate performance and cost-benefits.
- Evaluate efficacy and risk of water and muck mitigation and management strategies approaches (i.e. aeration, ultrasound, Pilot study of *in situ* muck capping, etc.).
- How is impoundment management impacting water quality and fisheries health?
- Understand the impacts of thermal pollution from road runoff and power plants on biological resources, habitats and water quality.

## **7. CLIMATE CHANGE AND SEA LEVEL RISE:**

### Research Priorities that align with the Climate Ready Estuary Vital Sign of the CCMM

- Acidification (carbonate biogeochemistry, aragonite saturation, CASS - coastal acid sulfate soils).
- Understand the influences and spatial/temporal complexity of climate change on IRL water quality with special attention to temperature, salinity and pH (including aragonite saturation).
- Understand the influence of projected sea level rise scenarios on IRL ecology.
- Understand the influence of climate change on watershed hydrology (i.e. how will drought and heavier precipitation influence stormwater and ground water runoff).
- Conduct a risk-based assessment of coastal vulnerability and develop an adaptation strategy for coastal resilience.
- Understand the influence of climate change and sea level rise on human-built infrastructure, and economy.
- Develop models to predict the impact of sea level rise on IRL storm surges and high tides.
- Science to inform IRL risk exposure, disaster preparation and response.
- Conduct a risk-based assessment of coastal vulnerability and develop an adaptation strategy for coastal resilience.
- What effect will warming temperatures, dryer dry seasons, and wetter wet seasons due to Anthropogenic Climate Change have on IRL ecology?

## **8. SMART GROWTH PLANNING AND INFRASTRUCTURE**

### Research Priorities that align with the Healthy Community Vital Signs of the CCMM

- Does green infrastructure (LID) work in Florida? Conduct research on green infrastructure practices and how they relate to IRL water quality improvements. (Plenty of examples on the other coast that have been in place for decades, with associated monitoring data. Need to demonstrate through science that green infrastructure can be a benefit to local builders, developers, building code officials and communities.
- Why aren't we implementing green infrastructure (LID) projects in the IRL watershed? Conduct policy research that identifies barriers to building more sustainable green infrastructure.
- How can we mitigate future land use impacts and population growth trends? Develop predictive and quantitative models that forecast land use changes, ocean (and lagoon) water level changes, rain fall changes, and water chemistry changes over time and into the future.
- Are we limiting and/or appropriately assessing property taxes that cover the triple bottom line (i.e. social, economic, and environmental costs) for wetland development impacts?
- Are HOAs in newly developed neighborhoods being monitored adequately so as to ensure adequate retention ponds and aeration fountains are operating effectively?
- Understand and respond to current and future climate change impacts by better integrating local climate change indicators with existing emergency management, storm water planning and infrastructure planning.

## 9. **SOCIOECONOMIC STUDIES**

### Research priorities that align with the Implementation and Financing Vital Sign of the CCMP

- Update the economic valuation of the IRL (TCRPC, 2016) to include economic estimates for ecosystem services.
- Human behavior analysis. How do science messages influence behavior change?
- incorporate the socio-economic aspects of the IRL moving forward with assistance from social scientists and economists. In particular, understanding sense-of-place and subsequent behavior changes, will have major impacts on IRL's future. The current plan is very biology/engineering heavy. I would also advocate that we need to incorporate the history of the lagoon into its future. I'm not just saying that because it is an interest of mine, but there are a lot of people who think the IRL is in good shape since mullet have returned, etc. Not all see the same doom and gloom. Additionally, what becomes of all the additional people hoping to move to the lagoon counties in upcoming years? How to we handle conflicts among user groups? Prepare for disasters?
- Science to optimize economic, social, and environmental benefits to IRL.
- To what extent does the public know and understand the many threats to the IRL and the consequences of inaction and are current education/outreach efforts reaching an audience representative of all stakeholders?
- Who are the polluters and what can make them stop? Social marketing research that defines polluters based on their demographics, clarifies polluting behaviors and the benefits and barriers to changing them, increases understanding of the types of messages and materials that will result in behavior change, and ultimately measures that change in behavior over time, linking behavior change to a change in environmental quality. There are now hundreds of examples of how this research is done by environmental programs.

## 10. **TRANSFORMATIVE INNOVATION AND TECHNOLOGY**

Research priorities that align with the Science, Technology and Innovation Vital Sign of the CCMP and multiple other vital signs

- 21<sup>st</sup> Century Wastewater Infrastructure: Identify a location, partners and secure sufficient funding to demonstrate a state-of-the-science 21<sup>st</sup> century wastewater treatment plant within the IRL watershed (possible Kennedy Space Center?).
- Research and development of new muck management and beneficial use technologies and methodologies.
- Research and development of new technologies and to address concerns about emerging contaminants and nutrient problems associated with biosolids management and reclaimed water from wastewater treatment plants.
- Research and development of cost-effective technologies that deliver an OSDS that has zero nutrient and pollutant discharges to ground and groundwater.
- New water quality sensor technologies that decrease the cost of water quality monitoring and real-time data acquisition and sharing.
- Technologies that improve data quality control, data sharing and data communication from disparate sources

DRAFT



**RESOLUTION NO. 2021-03**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRL COUNCIL ADOPTING THE FINAL BUDGET FOR THE 2022 FISCAL YEAR**

**WHEREAS**, the IRL Council was created via Interlocal Agreement to carry out the goals of the Indian River Lagoon National Estuary Program; and

**WHEREAS**, the IRL Council held a public hearing on February 12, 2021 and adopted a Tentative budget for Fiscal Year 2022 pursuant to its By-Laws; and

**WHEREAS**, the IRL Council held a public hearing on May 14, 2021 to consider the Final Budget for Fiscal Year 2022.

**NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE IRL COUNCIL, THAT:**

**Section 1.** The Fiscal Year 2022 Final Budget is attached as Exhibit "A".

**Section 2.** The Fiscal Year 2022 Final Budget is hereby adopted.

**Section 3.** This Resolution shall become effective immediately upon passage.

DONE at \_\_\_\_\_, Florida, this \_\_\_\_\_ day of \_\_\_\_\_, 2021.

By: \_\_\_\_\_  
Stacey Hetherington, Chair

ATTEST:

\_\_\_\_\_  
Chris Dzadovsky, Secretary

Approved as to legal form and sufficiency:

\_\_\_\_\_  
Glen J. Torcivia  
IRL Council, Legal Counsel

**IRL Council  
FY 2022 Final Budget  
Exhibit A**

**REVENUES**

Federal	\$ 700,000
IRL License Plate	\$ 125,000
Member Contributions	\$1,500,000
<b>TOTAL REVENUES</b>	<b><u>\$2,325,000</u></b>

**EXPENDITURES**

Other Expenditures	\$1,703,495
IRL Council Strategic Program, IRLNEP 2022 EPA Work Plan, Unplanned Contingency Reserve	
Salaries & Benefits	\$ 404,505
Facilities Expenses	\$ 35,500
Rent, Utilities, Equipment Maintenance, Communications	
Administrative Costs	\$ 65,500
Postage, Office Supplies, Insurance, Printing, Travel, Licenses & Subscriptions, Dues, Professional Development	
Administrative Services	\$ 116,000
Legal, Accounting, Auditing, IT Services, Legal Ads	
<b>TOTAL EXPENDITURES</b>	<b><u>\$2,325,000</u></b>
Agency Balance Beginning of Year	\$ 0
Fund Balance - Beginning of Year	\$ 0
Fund Balance - End of Year	\$ 0

<b>FY 2022 Tentative Budget</b>	Approved February 12, 2021	<b>FY 2022 Final Budget</b>	Pending	Higher Lower	(Notes)
<b>REVENUES</b>		<b>REVENUES</b>			
Federal	\$ 700,000	Federal	\$ 700,000		
IRL License Plate	\$ 125,000	IRL License Plate	\$ 125,000		
Member Contributions	<u>\$1,500,000</u>	Member Contributions	<u>\$1,500,000</u>		
TOTAL REVENUES	\$2,325,000	TOTAL REVENUES	\$2,325,000		
<b>EXPENDITURES</b>		<b>EXPENDITURES</b>			
Other Expenditures	\$1,679,295	Other Expenditures	\$1,703,495	\$24,200	(1)
IRL Council Strategic Program, IRLNEP FY2022 EPA Work Plan, Unplanned Contingency Reserve		IRL Council Strategic Program, IRLNEP FY21 Work Plan, Online Store, Unplanned Contingency Reserve			
Salaries & Benefits	\$ 404,505	Salaries & Benefits	\$ 404,505		
Facilities Expenses	\$ 35,500	Facilities Expenses	\$ 35,500		
Rent, Utilities, Equipment Maintenance, Communications		Rent, Utilities, Equipment Maintenance, Communications			
Administrative Costs	\$ 75,500	Administrative Costs	\$ 65,500	\$10,000	(2)
Postage, Office Supplies, Insurance, Printing, Travel, Licenses & Subscriptions, Dues, Professional Development		Postage, Office Supplies, Insurance, Printing, Travel, Licenses & Subscriptions, Dues, Professional Development			
Administrative Services	\$ 130,200	Administrative Services	\$ 116,000	\$14,200	(3)
Legal, Accounting, Auditing, IT Services, Legal Ads		Legal, Accounting, Auditing, IT Services, Legal Ads			
TOTAL EXPENDITURES	<u>\$ 2,325,000</u>	TOTAL EXPENDITURES	<u>\$ 2,325,000</u>		
Agency Balance Beginning of Year	\$ 0	Agency Balance Beginning of Year	\$ 0		
Fund Balance Beginning of Year	\$ 0	Fund Balance Beginning of Year	\$ 0		
Fund Balance – End of Year	\$ 0	Fund Balance – End of Year	\$ 0		

## **FY 2022 Final Budget Expenditure Detail (Narrative)**

### **(1) OTHER EXPENDITURES (\$1,703,495)**

1. IRL Council Strategic Program (\$973,781) includes the following:
  - a. Water Quality Restoration Projects - \$566,500
  - b. Habitat Restoration - \$199,994
  - c. Community-Based Restoration - \$116,500
  - d. Small grants program - \$25,000
  - e. IRLNEP Technical Support of Conferences and Workshops - \$30,000
2. IRLNEP FY2022 EPA Workplan (\$700,000) includes the following:
  - a. Science and innovation RFP project(s) - \$100,000
  - b. State of the Lagoon Technical Report Y3 - \$75,000
  - c. Communication Support: Service contracts for web/graphics/design support, scientific and other publications, other contract support as needed, and expanded social media and support for communication intern - \$205,225
  - d. Biodiversity Inventory Contract Y3 - \$25,000
  - e. Atmospheric Deposition Monitoring Y3 - \$28,000
  - f. Harmful Algal Bloom Monitoring Contracts - \$150,000
  - g. Grant Writing Support contracts - \$40,000
  - h. EPA Travel (mandatory) - \$10,000
  - i. CCMP project inventory and prioritization service contract(s) - \$66,775
3. Unplanned Contingency Reserve - \$29,714

### **• SALARIES AND BENEFITS (\$404,505)**

1. Executive Director - \$146,250
2. Deputy Director - \$105,755
3. Chief Operating Officer - \$94,908
4. Administrative Coordinator - \$57,592

### **• FACILITIES EXPENSES (\$35,500)**

1. Utilities - \$2,000
2. Rent and Leases - \$8,500
3. Equipment Maintenance - \$5,000
4. Equipment and Communications - \$20,000

### **(2) ADMINISTRATIVE COSTS (\$65,500)**

1. Travel General - \$15,000
2. Postage and Mailing - \$1,000
3. Office Supplies - \$5,000
4. Dues, Licenses, and Subscriptions - \$10,000
5. Printing - \$20,000
6. Insurance - \$6,500
7. Staff Training and Professional Development - \$8,000

### **(3) ADMINISTRATIVE SERVICES (\$116,000)**

1. Legal - \$65,000
2. Accounting - \$28,500
3. Auditing - \$17,000
4. IT Services and Compliance - \$5,000
5. Legal Ads - \$500